QUARTERLY SUMMARY

OF THE

IMPROVEMENTS AND DISCOVERIES

IN THE

MEDICAL SCIENCES.

ANATOMY AND PHYSIOLOGY.

Innervation of the Cardiac Portion of the Stomach by the Pneumogastric.

Dr. Theodor von Openchowski, of Kieff, gives the following as the conclusions drawn by Professor H. **Kroneker** on this subject: 1. The cardia of rabbits is innervated by the pneumogastric, the right sending a branch to the anterior part of the œsophagus, the left to the posterior part, branches being also sent to Auerbach's plexus in the stomach; this plexus also receives sympathetic filaments from the mesenteric ganglia. 2. From Auerbach's plexus, which contains multipolar ganglia, net-like fibres are distributed to the muscular structure of the stomach and cardia, so that the plexus is an intermediate centre in relation with which are the vagal respiratory sympathetic centripetal fibres, which represent centrifugal tracts to the muscular structure. 3. The pneumogastrics also send small fibres to the small collections of sympathetic ganglia which are dispersed over the cardia. 4. Attached to the larger branches of the pneumogastric, lying in the cardial region, are large many-celled (some containing so many as twenty cells) ganglia. Eight such groups were found attached to the right vagus, and three large collections to the left.

This anatomical distribution becomes intelligible through the following physiological facts: 1. The divided cardia (of frogs) can perform automatic contractions for hours. 2. In living rabbits the unirritated cardia remains at rest; after death, as is well known, it makes rhythmical contractions (cardial pulse). These contractions can be observed on the living animal if the cardia is rendered anæmic by ligating the cœliac artery. 3. The cardia cannot be made to contract by isolated induction blows, by which the vagus is irritated. 4. Strong induction blows, at intervals of one-third of a second, cause feeble contractions of the cardia after from one-half to two seconds. 5. Frequent irritations, of moderate intensity, at intervals of one-twelfth to one-thirtieth of a second, cause contractions; of slight intensity cause expansion of the cardia. 6. Frequent irritations of considerable intensity (intervals of one-fiftieth to one-sixtieth of a second) cause also feeble expansion of the cardia. 7. Irritations, sufficient to cause opening of the cardia, often do not give any evidence of vagal action in the registered heart beats. 8. It is necessary to recognize that the cardia, under the conditions of the experiment, is generally found in a condition of considerable tonus, which can be decreased by retarded innervation. 9. This retardation can be obtained by electric tetanization of the vagi, by accelerating respiration, or by local venous engorgement (constricting the portal vein) 10. Such contractions are stronger after section of the vagi in the neck, and do not cease when the splanchnics are divided in the abdomen. 11. If all the vagal branches which do not directly supply the cardia, are divided, one obtains, through electrical stimulation of the vagi by a power current, a strong expansion of the cardia, this decreasing excitability lasting a long time. 12. If one succeeds in destroying the cardial fibres, while the fibres of the stomach are left intact, irritation of the vagi will produce closure of the cardia with every strong current. This function is easily exhausted, but soon returns to its former state. In this way special constrictor nerves of the cardia are recognized. 13. After interrupting all sympathetic connections between the abdominal ganglia and the stomach the above phenomena remain unaltered.—*Centralb. f. die med. Wissensch.*, Aug. 4, 1883.

Uterine Milk.

A recent number of the *Zeitschrift für Geburtshülfe und Gynäkologie* contains an article by Dr. G. VON HOFFMANN, of Wiesbaden, in support of the doctrine advocated by Ercolani, and to a certain extent by Dr. Braxton Hicks, viz., that the fœtal villi in the placenta do not float naked in the maternal blood, but are surrounded by cells whose function it is to secrete a special fluid serving for the nutrition of the fœtus, and called uterine milk. Dr. von Hoffmann believes that he has been able to extract this fluid from the human placenta. His method is simply this—he takes a quite fresh placenta, which has not been allowed to come into contact with water, and lays it with its maternal side uppermost. A cotyledon, the integrity of which has not been damaged, is then selected, and carefully dried with a sponge or towel, so that no blood adheres to it, and into a capillary tube is then pressed, so that it may penetrate about one third or half an inch. The tube thus used pushes the villi aside, and lies in the inter-villal space. It is important in inserting the instrument to see that no bloodvessels are injured by it, lest blood be effused between the villi. When a capillary tube is employed in this manner it sucks up the fluid from the intervillal space (*i. e.*, the uterine milk), which can then be collected and examined. Dr. von Hoffmann has examined the fluid from about forty placentæ, some at term, others from cases of absorption at different months. Microscopically, he finds in it the following constituents: 1. Red blood-corpuscles of different sizes and depth of colour, often, especially in placentæ of the earlier months, with little or no tendency to aggregate into rouleaux. 2. White corpuscles. 3. The chief structures contained are what the author calls "uterine milk-globules," peculiar, clear, round globules, having a very thin, feebly refracting wall, on the average about as large as white corpuscles, but varying from a tenth of, to twice, their size. These bodies precisely resemble those seen in "uterine milk" obtained from the placenta of the cow. 4. Clear watery intercellular fluid. The above-described "uterine milk-globules" are present in such numbers that Dr. von Hoffmann calculates that each cubic millimeter of the fluid contains 180,000 to 200,000 of them. 5. There are also found free decidual cells and pigmentary molecules, granules, and flakes of different shapes and sizes, which our author regards as products of the disintegration of red blood-corpuscles. Fluid such as this, Dr. von Hoffmann states, can be extracted from every healthy placenta; if it is wanting, the placenta is not healthy. He believes, moreover, that he has traced the mode of formation of these "uterine milk globules" from decidual cells, and the production of the large decidual cells from the many nucleated "giant-cells" of the decidua.